Fig. 1

Reactive Sites

Solid Substrate

T = Tether moieties

NH₂

Solid Substrate

Fig. 2

200

202

204

210

208

206

NH_2 — Si(OCH$_3$)$_3$ — ATMS

NH_2 — Si — O —

Diazonium ion

$N \equiv N^+$ Cl$^-$ — Si — O —

$NaNO_2$ + HCl at 4 °C, 30 min

$N = N$ — Si — O —

$N = N$ — Si — O —

Bake at 80 °C, 2 hr

UV-crosslink 90mJ

Double stranded, unlabeled target DNA at 4 °C

Cy3/Cy5-dCTP DNA

Hybridize at 42 °C for 4-24 hr

Fig. 3

Diazonium ion

NaNO₂ + HCl
at 4 °C, 30 min

4-aminothiophene

Single stranded,
unlabeled target DNA

at 4 °C

Cy3/Cy5-dCTP
DNA

Hybridize at 65 °C
or 42 °C for 4-24 hrs

300

302

304

306

308

FIG. 4

ATMS/
diazotized

Polylysine

Telechem
silylated

H$_2$O   3X SSC

FIG. 5

FIG. 6a

1:1   1:2   1:5   1:10   1:25   1:50   1:100

FIG. 6b

FIG. 7

FIG. 8a

A   B   C   D   E

FIG. 8b

FIG. 9a

FIG. 9b

Fig. 10